

NEPTUNE

All-Weather Long-Range PTZ Camera

INFINITI

The Neptune PTZ is designed for mobile and marine applications with optional 2-axis gyro stabilization and various EO/IR payload configurations. Numerous visible zoom lens options up to 272mm, and multiple sensor resolutions available from Full-HD up to 8MP/4K make the Neptune a high performance day camera. When paired with up to 2000m of ZLID illumination or up to a 275mm thermal imaging camera, the Neptune system offers remarkable nighttime surveillance performance as well. All of these sensors are integrated into a rugged IP67 weatherproof housing constructed of strengthened aluminum. The Neptune is built to withstand some of the harshest climates, making it ideal for perimeter security, homeland defense, and coastal protection.

Key Features:

- › Long-Range Day/Night PTZ Camera System
- › 2MP, 4MP or 8MP High-Resolution CMOS Sensor
- › HD Lens with 22X, 30X, 36X, 38X or 49X Optical Zoom
- › Optical Field of View Options ranging from 70° to 1.2°
- › ZLID™ for up to 2km Night Vision in Complete Darkness
- › Thermal Imaging for Long-Range Detection up to 20km*
- › Designed for Operation in -30°C to +60°C
- › Rugged IP67 Weatherproof Housing
- › High Resolution Pan/Tilt for Smooth Operation
- › Control via RS485/Pelco-D or Octagon Bridge/API Commands
- › Integrated Optical Fog Filter on select models

Optional Features:

- › Gyro Stabilization
- › GPS & 4G Cellular
- › Marine Joystick
- › Slew-to-Cue via NMEA 0183
- › Integrated Internal Storage
- › Wide-Angle 4K Spotter Camera



22X
ZOOM

30X
ZOOM

36X
ZOOM

38X
ZOOM

49X
ZOOM

Multiple Zoom
Lens Options
up to 272mm

300m
ZLID™

1km
ZLID™

2km
ZLID™

Optional IR
Illumination
up to 2km

35
mm
LWIR

55
mm
LWIR

26mm-
75mm
LWIR

19mm-
275
MWIR

Optional
Thermal up to
275mm Zoom

PTZ

PTZ Controls &
Optional Gyro
Stabilization

Rugged
& Mobile
Ready

IP67

Waterproof
with Military
Connectors

THE NEPTUNE'S Visible/NIR HD Zoom Camera



VIS/NIR Optical Camera

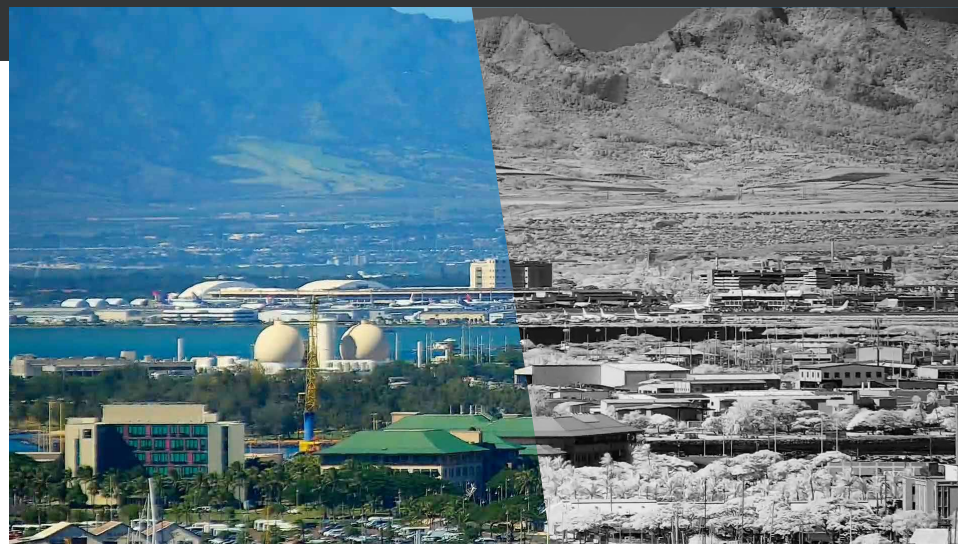
Infiniti's VIS/NIR zoom cameras utilize the visible and near-infrared bands of light to provide high-quality images optimized for long-range surveillance. They are designed to provide industry-leading performance and quality, with image resolutions ranging from HD 2MP (1080p) to UltraHD 4K/8MP.

Sensors

The Sony progressive scan CMOS sensors offer excellent spectral sensitivity for both visible and NIR wavelengths. We use various sensor sizes depending on the application. Our 1/2.8" sensor is often selected for maximum range as the smaller sensor maximizes the long-range zoom capabilities of the camera, while still offering good low-light performance. Our 1/2" and larger sensors offer superior low-light performance and increase the effectiveness of our ZLID™ illumination.

Continuous Zoom Lenses

The Neptune's precision engineered IR-corrected zoom lenses offer a wide range of focal lengths with zoom factors from 22X up to 49X optical zoom. Infiniti's zoom optics are built with the highest quality Japanese fluorite ELD low dispersion glass, and the integrated rapid auto focus allows long-range surveillance of targets without operator intervention.



Standard Color Visible Image
(Optical Fog Filter Disabled)

NIR Image
(Optical Fog Filter Enabled)

Optical Fog Filter (NIR Only Mode)

While all of our sensors offer a nighttime NIR+visible mode for optimized sensitivity in low light, the cameras equipped with our NIR bandpass filter (also referred to as a "fog filter") allow users to isolate the NIR (near-infrared) wavelength of light during the day for clearer long-range daytime imaging.

Long-range imaging needs to see through large amounts of atmosphere which often contains particulates like smoke, haze/fog, and other atmospheric distortions. Cutting out the visible wavelength and isolating the NIR can mitigate the effects of smoke, haze and light fog, producing an image with better contrast and less distortion. Our Optical Fog Filter lenses incorporate a motorized filter that is used with the camera's monochrome mode and de-haze image processing to see through smoke, smog and haze, it is available on our -NX models.

THE NEPTUNE'S ZLID™ & Thermal Technologies



See in the Dark with ZLID™

IR illumination allows for detailed video when there isn't enough natural light, however common IR LED illuminators have very limited ranges. For long-range illumination, a laser is needed. Many laser illuminators overexpose the center of the screen and leave the edges dark. Infiniti's ZLID (Zoom Laser IR Diode) technology synchronizes the IR intensity and area illumination with the zoom lens for outstanding active IR performance, eliminating over-exposure, washout, and hot-spots for clear images in complete darkness.

See Further with Thermal

An optional thermal imager lets you see further than any other night vision technology. Unlike traditional visible cameras, thermal imaging uses heat rather than light to see objects. Humans, animals, and vehicles are hot in contrast to most backgrounds, making trespassers hiding in shadows or bushes easy to spot. Thermal images are also unaffected by bright light and have the ability to see through atmospheric obstructions such as smoke, dust, and light fog. This makes it an ideal technology for many applications, including surveillance and security, search and rescue, fire, marine and land navigation, wide area situational assessment and much more.



12μm VOx Thermal Imager

The Neptune's LWIR sensor options use a cutting-edge 12μm VOx uncooled sensor, giving the camera a narrower field of view without changing the lens. The smaller 12μm pixel pitch achieves a 40% further range than 17μm sensors or 200% further range than older 25μm sensors. The high-sensitivity sensor detects differences in temperature as small as $\pm 0.05^{\circ}\text{C}$, and its no-maintenance VOx design, unlike other thermal cores, is self healing and resistant to solar damage.

275mm MWIR Cooled Thermal

The Neptune's longest range thermal option is our 14X zoom 19-275mm cooled MWIR thermal module with detection distances of up to 20km and a 28.4°-2.0° Horizontal FOV.



Human DRI:

55mm Ge lens
■ 2613m
■ 871m
■ 435m

75mm Ge lens
■ 2969m
■ 990m
■ 495m

275mm MWIR
■ 8708m
■ 2903m
■ 1451m

Vehicle DRI:

55mm Ge lens
■ 6050m
■ 2017m
■ 1008m




75mm Ge lens
■ 6875m
■ 2292m
■ 1146m

275mm MWIR
■ 20167m
■ 6722m
■ 3361m

■ **DETECTION***
■ **RECOGNITION***
■ **IDENTIFICATION***

*DRI detection ratings are based on industry-wide standards (Johnson's Criteria) that can be misleading if not properly understood. For more information, please see our whitepaper about understanding DRI measurements at: www.infinitioptics.com/dri

Visible Camera Options

		8M-49X(-NX)	4M-49X(-NX)	38X	8M-30X	49X(-NX)	4M-36X(-NX)	8M-22X	36X(-NX)
Output Resolution		4K @ 30fps (3840×2160)	4MP/1080p @ 60fps (2560×1440)	2MP @ 30fps (1920×1080)	8MP/4K @ 30fps (3840×2160)	2MP/1080p @ 30fps (1920×1080)	4MP @ 60fps (2688×1520)	4K @ 30fps (3840×2160)	2MP/1080p @ 30fps (1920×1080)
Pixels Per Meter @ 1km		145ppm	97ppm	93ppm	92ppm	78ppm	76ppm	72ppm	62ppm
Simulated FOV @ 1km									
DORI	D: 25ppm	5,819m Detection	4,492m Detection	4,335m Detection	3,638m Detection	3,418m Detection	3,265m Detection	3,081m Detection	2,484m Detection
	O: 62ppm	2,346m Observation	1,811m Observation	1,748m Observation	1,467m Observation	1,378m Observation	1,316m Observation	1,242m Observation	1,002m Observation
	R: 125ppm	1,164m Recognition	898m Recognition	867m Recognition	728m Recognition	684m Recognition	653m Recognition	616m Recognition	497m Recognition
	I: 250ppm	582m Identification	449m Identification	434m Identification	364m Identification	342m Identification	326m Identification	308m Identification	248m Identification
Image Sensor		1/1.8" 8.4 Megapixel CMOS	1/1.8" 4.1 Megapixel CMOS	1/2.8" 2.4 Megapixel CMOS	1/1.7" 12.4 Megapixel CMOS	1/1.9" 2.1 Megapixel CMOS	1/1.8" 4.5 Megapixel CMOS	1/1.8" 8.4 Megapixel CMOS	1/1.9" 2.1 Megapixel CMOS
Lens*	Focal Length	5.6-272mm f/1.4-4.5	5.6-272mm f/1.4-4.5	7.2-270mm f/1.6-6.0	6-180mm f/1.5-4.3	5.6-272mm f/1.4-4.5	6-218mm	6.4-144mm	6-218mm f/1.5-4.8
	Optical Zoom	49X Zoom	49X Zoom	38X Zoom	30X Zoom	49X Zoom	36X Zoom	22X Zoom	36X Zoom
	Angle of View	71°-1.5° Horizontal	71°-1.5° Horizontal	43.5°-1.2° Horizontal	64.7°-2.4° Horizontal	68°-1.4° Horizontal	65.2°-2.0° Horizontal	65.2°-3.1° Horizontal	58.6°-1.8° Horizontal
	Focus	Auto / Manual	Auto/Manual	Auto / Manual	Auto/Manual	Auto/Manual	Auto/Manual	Auto/Manual	Auto/Manual
S/N Ratio		≥55dB	≥55dB	≥55dB	≥55dB	≥55dB	≥55dB	≥56dB	≥55dB
Minimum Illumination		Color: 0.1 Lux @ f/1.4; B&W: 0.01 Lux @ f/1.4	Color: 0.001 Lux	Color: 0.005 Lux @ f/1.6; B&W: 0.0005 Lux @ f/1.6	Color: 0.1 Lux; B&W: 0.01 Lux	Color: 0.001 Lux	Color: 0.005 Lux @ f/1.6; B&W: 0.0005 Lux @ f/1.6	Color: 0.04 Lux @ f/1.5; B&W: 0.002 Lux @ f/1.5	Color: 0.001 Lux; B&W: 0.0001 Lux
Optical Fog Filter (NIR)		Optional	Optional	No	No	Optional	Optional	No	Optional
NDAA Compliant		Yes	No	No	No	No	No	Yes	No
Video Network	Compression	H.265/H.264/MJPEG							
	Protocol	ONVIF, HTTP, RTSP, RTP, TCP, UDP							
EIS		Electronic Image Stabilization (On/Off)							
Image Enhancements		White Balance, 100dB WDR, 2D/3D DNR, BLC, HLC, Digital Defog							
Digital Zoom		4x Digital Zoom							
Edge Storage		Supports MicroSD Card up to 256GB							

*Lens measurements and angle of view are accurate to ±10% due to back focus distances, sensor sizes, lens manufacturing, etc.

ZLID™ Illumination Options

	150m IR	150m White	300m ZLID	500m ZLID	750m ZLID	1000m ZLID	1500m ZLID	2000m ZLID
Illumination Distance	150m	150m	300m	500m	750m	1000m	1500m	2000m
Wavelength	808nm	White Light	808nm	850nm	808nm	808nm	940nm	808nm
NOHD	0m (eye safe at any distance)		15m	18.5m	26m	50m	41m	226m

Thermal Camera Options

	19mm Fixed	25mm Fixed	35mm Fixed	55mm Fixed	75mm Fixed	26-75mm Zoom	19-275mm MWIR Zoom
Image Sensor	Uncooled Vanadium Oxide (VOx) Microbolometer, 30Hz or 9Hz upon request						InSb Cooled Thermal Imager, 30Hz
Resolution	640×512/640×480 pixels or 384×288 pixels						640×512 pixels
Pixel Pitch	12µm (Over 200% further range than 25µm sensors, 40% further range than 17µm sensors)						15µm
Lens	19mm	25mm	35mm	55mm	75mm	26-75mm Continuous Zoom	19-275mm Continuous Zoom
Focus	Athermalized	Athermalized	Athermalized	Motorized Focus	Motorized Focus	Motorized Autofocus	Motorized Autofocus
Field of View on 640×512	22.9° Horizontal FOV	17.5° Horizontal FOV	12.5° Horizontal FOV	8.0° Horizontal FOV	5.9° Horizontal FOV	16.8°-5.9° Horizontal FOV	28.4°-2.0° Horizontal FOV
Field of View on 384×288	13.8° Horizontal FOV	10.5° Horizontal FOV	7.5° Horizontal FOV	4.8° Horizontal FOV	3.5° Horizontal FOV	10.1°-3.5° Horizontal FOV	N/A
Human Detection*	752 m / 2,647 ft	990 m / 3,246 ft	1,385 m / 4,544 ft	2,613 m / 8,569 ft	2,969 m / 9,738 ft	2,969 m / 1.84 mi	8.71 km / 5.41 mi
Human Recognition*	251 m / 822 ft	330 m / 1,082 ft	462 m / 1,515 ft	871 m / 2,856 ft	990 m / 3,246 ft	990 m / 0.61 mi	2.90 km / 1.8 mi
Human Identification*	125 m / 411 ft	165 m / 541 ft	231 m / 757 ft	435 m / 1,428 ft	495 m / 1,623 ft	495 m / 0.31 mi	1.45 km / 0.9 mi
Vehicle Detection*	1,742 m / 5,713 ft	2,292 m / 7,517 ft	3,208 m / 10,523 ft	6,050 m / 19,844 ft	6,875 m / 22,550 ft	6,875 m / 4.27 mi	20.16 km / 12.53 mi
Vehicle Recognition*	581 m / 1,904 ft	764 m / 2,506 ft	1,069 m / 3,508 ft	2,017 m / 6,615 ft	2,292 m / 7,517 ft	2,292 m / 1.42 mi	6.72 km / 4.18 mi
Vehicle Identification*	290 m / 952 ft	382 m / 1,253 ft	535 m / 1,754 ft	1,008 m / 3,307 ft	1,146 m / 3,758 ft	1,146 m / 0.71 mi	3.36 km / 2.09 mi
Image Optimizations	DICE (Dynamic Image Contrast Enhancement), BPR, NUC, & AGC user configurable via SDK, GUI						AGC, EIS, Denoise
Digital Zoom	2X & 4X dynamic zoom/pan with range switching						4X Digital Zoom
Spectral Range	7,000-14,000nm (LWIR)						3,000-5,000nm (MWIR)
Thermal Sensitivity	50mK						25mK
Cooler Lifetime	No Cooler (maintenance free)						10,000 Hour Cooler
Image Display Modes	White Hot, other color palettes available upon request						User Color Palettes / LUT

* DRI detection ratings are based on industry-wide standards (Johnson's Criteria) that can be misleading if not properly understood. Please see our whitepaper about understanding DRI measurements at: www.infiniioptics.com/dri

Additional System Specifications

Pan/Tilt Mechanical

Pan Angle & Speed	Endless 360° Continuous Rotation, 0.05°/s to 300°/s for presets, 0.05°/s to 100°/s manual control, 0.01° minimum increment
Tilt Angle & Speed	-30° to +90°, 0.05°/s to 150°/s for presets, 0.05°/s to 100°/s manual control, 0.01° minimum increment
Proportional Pan/Tilt	Auto adjusts pan/tilt speed based on zoom level
Gyro Stabilization	2-axis, <0.2° RMS

Physical

Construction	High Strength Aluminum Alloy
Weight	30-36lbs (13.6-16.3kg), depending on configuration

Environmental

Operational Temperature	-30°C to +60°C, <90% Relative Humidity
Environmental	IP67 Weatherproof Housing

Electrical

Input Voltage	24VDC
Power Consumption	< 100W (will change depending on configuration)